

Breath tests beyond hydrogen and methane for carbohydrate malabsorption, small intestinal bacterial overgrowth, and intestinal methanogen overgrowth

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Perets *et al* should be commended for providing a practical national consensus on hydrogen and methane breath tests for carbohydrate malabsorption, small intestinal bacterial overgrowth (SIBO) and intestinal methanogen overgrowth [1]. However, I believe that 3 gaps warrant further commenting.

First, the panel limited their recommendations to 2 gases. Previous studies showed that breath hydrogen sulfide (H_2S) is elevated in diarrhea-predominant irritable bowel syndrome (IBS-D), and tracks fecal *Fusobacterium* and *Desulfovibrio*, whereas methane tracks *Methanobrevibacter* and constipation [2]. Since this notion was originally published, it has been shown via duodenal aspirate sequencing that breath H_2S reflects small bowel sulfide producers, not colonic ones alone [3]. Furthermore, a nationwide 3-gas series identified H_2S overproduction in roughly 10% of the patients tested [4].

Secondly, although the panel endorsed lactulose as the preferred substrate, this is not fully in accordance with the latest guidance. Specifically: (a) the European Society of Neurogastroenterology and Motility, and the American Neurogastroenterology and Motility Society argue that positivity largely reflects orocecal transit [5]; (b) the Asian Neurogastroenterology and Motility Association recommends glucose over lactulose [6]; and (c) in 2 comparable outpatient groups, SIBO was diagnosed in 24.4% of patients by lactulose vs. 4.8% by glucose, a finding that was attributed to poorer lactulose specificity [7]. From another viewpoint, the recent Rome V criteria avoided recommending routine breath tests in IBS patients altogether [8]. These disagreements should be discussed.

Third, the carbohydrate protocols mentioned [1] cover lactose, fructose and sorbitol, but not sucrose. Sucrase-isomaltase deficiency was found in 35% of adults with presumed IBS-D/mixed-type in a tertiary referral series [9], and caused similar symptoms. Undoubtedly, the sucrose breath test is poorly validated; however, directing clinicians to duodenal disaccharidase assay could be an option.

I would welcome the experts' opinion on these areas of ongoing debate.

References

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